



# Improve Energy Efficiency with ENERGY STAR Boilers

## Builder Guide



## DESCRIPTION

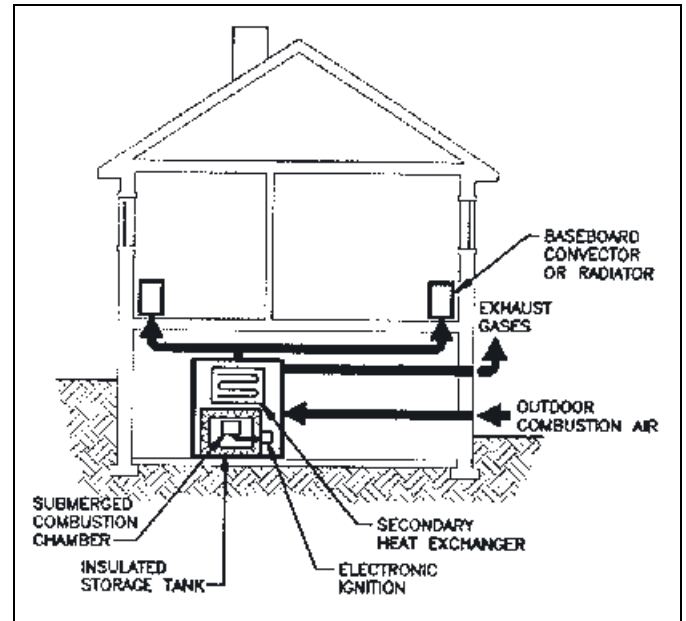
300,000 new boilers are installed in U.S. homes each year, and almost 40% of the houses built in the Northeastern U.S. are equipped with boilers. With combination space heating and water heating appliances increasing in popularity, these installations may increase further.

Boilers are much like furnaces, except they heat water instead of air for heating a house. Most hot water heating systems (called hydronic) use baseboard convection units, radiators, or under-floor piping to deliver heat to the house. However, combination systems are affordable that use a hot water coil in a forced air system to deliver heat to a house. Hydronic heating systems are typically more expensive to install than forced air heating systems, but are often selected for better comfort, increased room temperature control, and quiet operation. They are especially popular in colder climates, where central air-conditioning is not required. In these applications, heating costs are the greatest home energy expense for most homeowners. With a standard efficiency boiler, annual home heating costs may be \$1,000 or more. An ENERGY STAR labeled high efficiency boiler can save more than \$100 per year. Higher efficiency boilers can also offer longer life, and safer operation than less efficient models.



## BENEFITS

Providing energy efficient houses with comfortable high efficiency heating equipment can increase customer satisfaction, reduce callbacks, and increase referrals. This can only increase your business and profits.



### ☐ ENERGY STAR Boilers save money.

A high efficiency ENERGY STAR Boiler can reduce heating bills by up to 15% compared to a minimum efficiency boiler. In addition, hydronic systems typically have much lower distribution losses than forced air systems for additional savings. For a typical household this can mean over a hundred dollars savings per year.

### ☐ Installation of high efficiency boilers is hassle-free.

Many HVAC contractors in the Northeastern U. S. are already experienced in the installation of high efficiency boilers. Providing high efficiency boilers usually requires minimal changes in construction practices.

### ☐ High efficiency boilers feature higher quality components that last longer.

Look for quality construction, improved technology, and attention to detail in high efficiency boilers that can result in longer equipment life and often longer warranties on key components.

☐ **Direct vented boilers do not require a chimney.**

Most high efficiency boilers are direct vented units, without the need for a chimney stack. This improves efficiency and eliminates the risk of back-drafting combustion gases into the home. It can also add 2 to 4 square feet of living space normally used for the chimney chase.

☐ **Direct vented boilers are safer.**

In less efficient atmospheric vented boilers, combustion air is drawn from inside the house. A house may become depressurized when exhaust fans or fireplaces are used, enough for combustion gases in a low efficiency boiler to be drawn back into the house. "Back-drafting" can be a serious health hazard. Because high efficiency direct vented boilers use a fan to control the flow of intake and exhaust gases, there is no risk of back-drafting.



## INTEGRATION

☐ **Combination Space Heating and Hot Water Heating Systems deliver both domestic hot water and space heating.**

Some boiler manufacturers sell combined systems that can meet both domestic hot water and space heating requirements. These systems usually supply hot water to a heating coil in an air handler. The air handler acts like a furnace, providing warm air for heating in winter, and can be equipped with a cooling coil for summer air-conditioning. See "Combination System" fact sheet for more information.

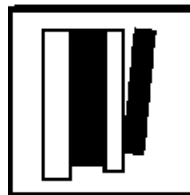
☐ **Properly sized HVAC equipment helps to ensure energy efficiency and comfort.**

When combined with other home energy efficiency features such as increased insulation and air-tight construction, energy efficient HVAC equipment can be right-sized for additional savings. The key to achieving this additional benefit is carefully sizing the equipment, accounting for energy efficient features and avoiding "rule-of-thumb" sizing techniques. See

fact sheets on "Right Sizing HVAC Equipment and Duct Sealing" for more information.

☐ **Installation of high efficiency boilers requires coordination with subcontractors.**

Without the need for a chimney stack, direct vented combustion appliances are vented directly through walls. This may save on materials and construction costs. Both masonry and framing crews should be coordinated with the installation of direct vented equipment.



## RESOURCES

- ☐ For more information on ENERGY STAR HVAC Program and qualifying equipment, call 1-888-STAR YES.
- ☐ *GAMA Directory of Certified Efficiency Ratings for Residential Heating and Water Heating Equipment*, Gas Appliance Manufacturers Association, 1996. Available at 703-525-9565.
- ☐ *Canadian Home Builder's Association Builder's Manual*, 1994. Available at 1-800-346-0104.
- ☐ *Moisture Control Handbook: Principles and Practices for Residential and Small Commercial Buildings* (Lstiburek and Carmody), 1993. Available at 1-800-346-0104.